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the "specified text" of Hattori to be a random phrase. The Examiner is in error.

Col. 9, lines 19-47 of Hattori reads:

As mentioned above, the speaker recognition device according to the present invention realizes avoidance of the imposture by voice recording with easy speaker registration and small storage capacity of the device, by combining two types of verification together, i.e. 'text verification using speaker independent speech recognition' and 'speaker verification by comparison with a reference pattern of a password of a registered speaker'.

Col. 8, line 65 to col. 9, line 5 of Hattori reads:

The speaker recognition device according to the present invention judges whether or not an unknown speaker is a genuine registered speaker (i.e. a customer), by instructing the unknown speaker to utter at least two kinds of things: a 'specified text' and a 'password'. The specified text is specified by the speaker recognition device or by the user of the device, and the password is decided by each speaker to be registered on speaker registration.

There is no disclosure in Hattori of how the "specified text" is specified by the speaker recognition device. In particular, there is no disclosure in Hattori that the "specified text" is randomly generated or is to be a one-time phrase. See, for example, Hattori at col. 9, line 61 et seq wherein reference is made to "December the twenty-fifth" being a "specified text" but no disclosure is made as to how this text is developed or even randomly generated.

The Examiner considers that Higgins discloses a database having a plurality of words and language rules for randomly generating one-time challenge phrases citing page 90, section 2. The Examiner is in error.

Higgins, at page 90, discloses that a design strategy was chosen "to form phrases by concatenating words selected at random from a **small vocabulary**." (emphasis added). The speech material chosen consisted of combination lock

phrases (175,616 phrases) with enrollment requiring "speaking 24 such phrases". Higgins discloses that prompted phrases are generated at random at the time when verification takes place.

Hence, Higgins teaches that an individual enrollee, at the time of enrollment, will speak only 24 phrases for the system to record for that individual. Higgins further teaches that it is only from these 24 phrases that an individual will be asked to utter a phrase for verification purposes when using the system.

Hence, since the Higgins system has only 24 phrases from which to select a phrase for verification, after 24 uses of the verification system by an individual, the phrases will be repeated. That is to say, the 24 phrases are not one-time challenge phrases as the Examiner posits.

In view of the above errors, the rejection of claim 1 as being unpatentable over Hattori in view of Higgins is not warranted.

The Examiner considers that it would be obvious to modify the system of Hattori to include the random phrase generation and processing of the entire signal for speaker and speech recognition as taught by Higgins. This rejection is not understood.

Hattori teaches that the speaker recognition device realizes avoidance of the imposture by combining two types of verification together, i.e. 'text verification using speaker independent speech recognition' and 'speaker verification by comparison with a reference pattern of a password of a registered speaker'. (Col. 9, lines 19-47).

Modifying Hattori to include the alleged random phrase generation of Higgins would mean that an individual would be required to speak a "specified text" that is selected from one of 24 prerecorded phrases. However, the prerecorded phrase

would not be a one-time challenge phrase for the reasons set forth above. For this reason alone, the proposed modification of Hattori would not result in the claimed structure.

Modifying Hattori to process the entire signal (i.e. the "specified text" and the password) for speaker and speech recognition as taught by Higgins would eliminate the teaching of Hattori of combining two types of verification together, i.e. "text verification using speaker independent speech recognition" and "speaker verification by comparison with a reference pattern of a password of a registered speaker". If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959) [MPEP 2143.01 VI]. The Examiner's proposal would change the principle of operation of Hattori. For this reason alone, the proposed modification of Hattori would not be obvious to one of ordinary skill in the art.

Whether an invention would have been obvious under § 103 is a question of law based on underlying findings of fact. *In re Kotzab*, 217 F.3d 1365, 1369 (Fed. Cir. 2000). For a *prima facie* case of obviousness to exist, there must be "some objective teaching in the prior art or . . . knowledge generally available to one of ordinary skill in the art [that] would lead that individual to combine the relevant teachings of the references." *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir.1988). "The motivation, suggestion or teaching may come explicitly from statements in the prior art, the knowledge of one of ordinary skill in the art, or, in some cases the nature of the problem to be solved." *Kotzab*,

217 F.3d at 1370. The presence or absence of a motivation to combine references is a question of fact, In re Dembiczak, 175 F.3d 994, 1000 (Fed. Cir. 1999), which is evaluated under the substantial evidence standard. In re Gartside, 203 F.3d 1305, 1316 (Fed. Cir. 2000).

For the above reasons, a rejection of claim 1 as being unpatentable over Hattori in view of Higgins is not warranted pursuant to the provisions of 35 USC 103.

Claim 1 is directed to a N-dimensional biometric security system that requires "a first data base having a plurality of words and language rules for randomly generating one-time challenge phrases from said words wherein each word of a randomly generated phrase is randomly generated". Neither Hattori nor Higgins, taken alone or in combination, describes or teaches such a system. For this additional reason, a rejection of claim 1 as being unpatentable over Hattori in view of Higgins is not warranted pursuant to the provisions of 35 USC 103.

In particular, neither Hattori nor Higgins, taken alone or in combination, describes or teaches randomly generating a one-time challenge phrase from words in a data base wherein each word of the phrase is randomly generated.

The Examiner states that Higgins randomly generates one-time challenge phrases but then goes on to say that there is an entire possible set of 175,616 phrases. These two statements contradict each other since a one-time challenge phrase is defined as one that does not repeat. In contrast to Higgins, Applicant generates one-time pass phrases which do not repeat. The entropy of Applicant's claimed one-time pass phrases is easily billions. This entropy is required in an advanced digital environment where automated spoofing using text to speech engines is now plausible.

The Examiner describes an enrollment in Higgins of specific words which are the sets of three two-digit numbers. It is this enrollment in the words that limits the entire possible set of phrases available for verification to be 175,616. In contrast, Applicant does not require specific words or text for speaker recognition enrollment or verification. The specific text is verified only for verification (not enrollment) of the one-time pass phrase and strictly through a separate speech recognition method. This is further in contrast to Higgins which employs speech recognition and requires specific text during enrollment.

Further, claim 1 requires "a controller ... communicating with said first data base for randomly generating a one-time challenge phrase from said plurality of words and language rules in said first data base and delivering said one-time challenge phrase...". Hattori does not describe how the "specified text" is generated. Higgins selects 1 of 24 previously programmed phrases and does not have a controller "for randomly generating a one-time challenge phrase from said plurality of words and language rules in said first data base". Clearly, the previously programmed phrases of Higgins do not constitute a "plurality of words and language rules". For this additional reason, a rejection of claim 1 as being unpatentable over Hattori in view of Higgins is not warranted pursuant to the provisions of 35 USC 103.

Claim 2 is believed to be allowable for the same rationale as claim 1. Further, claim 2 requires "in response to validation of said first signal, generating and delivering a randomly generated one-time challenge phrase". As noted above, since the password in Hattori is generated by the speaker, the combined specified text and password which is considered to be a "challenge phrase" by the Examiner in Hattori cannot be considered a "randomly" generated challenge phrase. Instead, the alleged

challenge phrase is dependent on the speaker.

Claim 4 contains recitations similar to claim 1 and is believed to be allowable for similar reasons. Further, claim 4 requires "said controller communicating with said station to receive and compare a spoken response to said challenge phrase with said entire challenge phrase to verify said spoken response as **exactly matching** said entire challenge phrase". As noted above with respect to claim 1, the text verification section 507 of Hattori does not exactly match the first input pattern (specified text) to the one time challenge phrase (password and specified text). Further, as noted above, modifying Hattori to process the entire signal (i.e. the "specified text" and the password) for speaker and speech recognition as taught by Higgins would eliminate the teaching of Hattori and would change the principle of operation of Hattori.

Claim 5 contains recitations similar to claim 2 and is believed to be allowable for similar reasons. Further, claim 5 requires "comparing said spoken response to said entire one-time challenge phrase to verify said spoken response as exactly matching said one-time challenge phrase". As noted above, the text verification section 507 of Hattori does not exactly match the first input pattern (specified text) to the one time challenge phrase (password and specified text). Further, as noted above, modifying Hattori to process the entire signal (i.e. the "specified text" and the password) for speaker and speech recognition as taught by Higgins would eliminate the teaching of Hattori and would change the principle of operation of Hattori. For these reasons, a rejection of claim 5 as being unpatentable over Hattori in view of Higgins is not warranted pursuant to the provisions of 35 USC 103.

Claims 6, 11 and 14 depend from claim 5 and are believed to be allowable for similar reasons.

Claims 7 and 8 depends from claim 2 and are believed to be allowable for similar reasons.

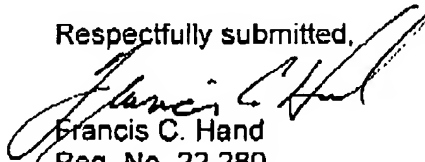
Claim 16 contains recitations similar to claim 1 and is believed to be allowable for similar reasons.

Claim 17 contains recitations similar to claim 1 and is believed to be allowable for similar reasons.

Claim 18 depends from claim 4 and is believed to be allowable for similar reasons. Further, claim 18 requires "said first data base stores said plurality of words and language rules in a plurality of language sets, each said language set being specific to a subject area different from the subject areas of the other of said language sets." Hattori is void of any such teaching. The passages of Hattori cited by the Examiner in support of the rejection are void of any teaching of words and language rules in a plurality of language sets or of any language sets of different subject areas. Note that Hattori discloses only that the "specific text" is "December the twenty-fifth" (see col. 9, lines 63-64). For this reason alone, a rejection of claim 18 as being unpatentable over Hattori in view of Higgins is not warranted pursuant to the provisions of 35 USC 103.

The application is believed to be in condition for allowance and such is respectfully requested.

Respectfully submitted,



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